

The difference between DCF and EDCAF

Consider DCF and EDCAF STAs wanting to transmit, with a third party sometimes making the channel busy. In the example below, AIFS = DIFS = 2 slots. Note the different point that channel access is won for the two.

DCF											
Commentary	Medium busy (3rd party TX)	SIFS	DIFS slot 1	DIFS slot 2	Backoff slot 1	Medium busy (3rd party TX)	SIFS	DIFS slot 1	DIFS slot 2	Backoff slot 2	Transmit
Backoff counter (slots)	New backoff chooses value of 2	2	2	2	2	1	1	1	1	1	0
Notes	In DCF, the backoff counter is decremented at end of each idle slot following DIFS. As soon as it hits zero, channel access is won and the transmission begins.										
EDCAF											
Commentary	Medium busy (3rd party TX)	SIFS	AIFS slot 1	AIFS slot 2	Backoff slot 1	Medium busy (3rd party TX)	SIFS	AIFS slot 1	AIFS slot 2	Transmit	
Backoff counter (slots)	New backoff chooses value of 2	2	2	2	1	0	0	0	0	0	
Notes	In EDCAF, at slot boundaries following AIFS (including the one immediately following AIFS) either the backoff counter decrements, *or*, if that counter is *already* zero then channel access is won.										
Summary:	EDCAF is different to DCF - it is not simply a generalisation or enhancement. With all initial parameters apparently equal as in the example above, DCF will fall behind by one slot each time it needs to suspend backoff.										